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MIRRORING DATA FACILITY
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Examiner: K. McLean
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Attn: Board of Patent Appeals and Interferences

Sir:

REPLY BRIEF PURSUANT TO 37 C.F.R. §41.41

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I. The Procedural History and Positioning of This Second Reply Brief

The history of this appeal will initially be addressed by Appellants, as it impacts the substance of the Examiner's Answer, and consequently this Reply Brief.

On May 1, 2002, Appellants filed an Appeal Brief.

On October 2, 2002, the Patent Office issued an Examiner's Answer.

On November 18, 2002, Appellants filed a Reply Brief.

On March 4, 2003, the Patent Office issued an order returning the undocketed appeal to the Examiner. Prosecution was reopened because the Amendment submitted on October 25, 2000 was never entered in the record, and therefore the claims listed in the Appendix of Appellants' Appeal Brief did not match the claims on record with the U.S. Patent and Trademark Office.

On October 21, 2004, the Patent Office issued an Office Action maintaining the rejections of all claims (i.e., claims 1-32, 34-60, 62-63 and 65-67) and addressing the limitations added via the Amendment submitted October 25, 2000. The content of the October 21, 2004 Office Action that is new relative to the prior Office Action (i.e., the Final Office Action mailed November 5, 2001) is underlined in the Office Action and comprises an additional paragraph on page 11 of the Office Action and several locations where the claim language added in the October 25, 2000 amendment has been added to the list of features that the Office Action alleges are shown by the prior art relied upon to reject the claims.

On January 21, 2005, Appellants requested reinstatement of their appeal under 37 C.F.R. §1.193(b)(2)(ii) and filed a Supplemental Brief that simply incorporated the original brief by reference with no new substantive arguments.

Rather than resubmitting the previous Examiner's answer, the Examiner has redrafted the Examiner's Answer to respond not to the arguments in Appellants' Appeal Brief resubmitted January 21, 2005, but rather to respond point-by-point to the arguments in Appellants' original Reply Brief filed November 18, 2002¹. Thus, Appellants incorporate by reference the original Reply Brief and respond below to the new points in the Examiner's Answer.

A. Introduction On The Substance

The key issue on appeal is what type of system one of ordinary skill would have been led to following the teachings of the prior art. It is undisputed that the only references of record that teach mirroring directly between two storage systems teach that such communication take place over a dedicated communication link directly coupling the two storage systems. When Appellants point that out, the Examiner asserts that Appellants are somehow seeking to "bodily incorporate" the teachings of the prior art references and to slight the capabilities of one of ordinary skill in the art to make the modifications that the Examiner needs to allege to reconstruct Appellants' invention. Quite simply, Appellants have done nothing more than point out what the prior art teaches, and to challenge the Examiner to find some motivation in the art to

¹ The Response to Arguments section of the Examiner's Answer beginning on page 10 is organized with the same headings and sub-headings as Appellants' Reply Brief.

employ anything other than a dedicated communication link between two storage systems that perform mirroring communication directly. Throughout the years of prosecution of this application, no such motivation has been provided, and the Examiner points to no justification for ignoring the teachings in the art that teach away from the claimed invention.

II. Appellants Have Merely Sought A Clear Explanation From The Examiner About What Type Of System Configuration It is Believed One Of Skill In The Art Would Have Arrived At Based Upon The Combined Teachings of Zarrow and Yanai

A. Appellants Have Never Required A Graphical Explanation

Throughout prosecution, Appellants repeatedly requested that the Examiner explain what system configuration it is believed one of skill in the art would have been led to based upon the teachings of Zarrow and Yanai, because Appellants believed that once the Examiner thought that issue through (as Appellants believe is required), the Examiner would appreciate that one of skill in the art would have been led to a system that employed a direct communication link between the storage systems as taught by Yanai, and the rejection would have been withdrawn.

Appellants respectfully disagree with the assertion in the Answer (see page 17) that the rejections were “textually indicated” in a clear manner. For example, the recitation of the rejection in the Answer merely states:

Therefore, one of ordinary skill in the art would have been motivated to add the teachings of Yanai to the teachings of Zarrow (remote mirroring over a WAN) for the desirable purpose of improved performance.
(Answer, page 4).

Appellants respectfully point out that it is simply unclear what type of system it is believed that one of skill in the art would have been led to based upon this statement. Appellants raise this point now because it is illuminating of what Appellants believe to be an improper hindsight

analysis. That is, to suggest that a conclusion can be reached that one of skill in the art would have been led to a system that meets all the limitation of the claim, without first forming a concrete conclusion as to what type of system configuration one would have been led to based upon those teachings, demonstrates that the goal of the analysis is hindsight reconstruction.

B. The Examiner's "Bodily Incorporation" Argument
Is Nothing More Than An Attempt To Ignore The
Unhelpful Teachings Of The References Without Justification

As mentioned above, the only prior art references of record that disclose storage systems capable of direct mirroring communication teach that such communication be performed over a dedicated communication link. (See e.g., Yanai and Ohran). The Examiner must ignore these teachings to reconstruct the claimed invention. Therefore, in response to Appellants' pointing out that one of ordinary skill in the art following the teachings of Yanai to achieve the benefits of direct storage system to storage system mirroring would have done it in the manner taught by Yanai, which was the only way known in the art, the Examiner asserts that Appellants are somehow improperly attempting to "bodily incorporate" the teachings of Yanai and are slighting those of skill in the art.

The Examiner mis-characterizes Appellants argument by asserting that Appellants have insisted that "one of ordinary skill in the art would not be able to modify" Zarrow to achieve direct storage system to storage system communication without doing it in the way taught by Yanai. (pages 17-18). This mis-characterization is illuminating, as the Federal Circuit has made plain that the test for determining obviousness is not whether one of skill in the art *would have been able* to achieve the claimed invention, but whether *there is any motivation in the art for doing so*. *In re Fritch* 23 USPQ 2d 1780, 1783-1784 (Fed. Cir. 1992) ("The mere fact that the

prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification.”).

The Examiner’s Answer further mis-characterizes Appellants’ argument as one stating that one of skill in the art “would not be able to separate the concept/idea of providing direct communication between two storage controllers from the structure used to implement this feature.” (page 18). What the Examiner seeks to do is pick and choose only the portion of Yanai that is helpful while ignoring the teachings that are not. Yanai undoubtedly teaches the advantageous concept of performing direct storage system to storage system communication to unburden the host. This was a great advance at the time, and required very sophisticated technology to be implemented. The assertion in the Answer that one of skill in the art would have been motivated to implement this concept differently is simply unsupported in the record. There is no prior art reference of record which teaches any desirability to performing mirroring communication over a network, and there is certainly no teaching of how this could be achieved. In fact, the teachings of record outside of Yanai are to the contrary, with Ohran specifically teaching that such systems require a dedicated communication link. (Ohran, col. 4, lines 62-65).

III. The Examiner Continues To Pick And Choose Only The Teachings
In The References That Are Perceived To Be Helpful While Ignoring
Those That Teach Away From The Present Invention

A. Zarrow

The Answer mis-characterizes Appellants’ argument as asserting that Zarrow “does not describe a system wherein a network connection is created between two computers to facilitate mirroring.” (Answer, page 19). To the contrary, Appellants have acknowledged that “Zarrow is directed to host-based mirroring over a network between two host computers that conventionally

communicate over networks, and have network interfaces 36 (Fig. 1) that enable such communication.” (Appellants’ Brief, page 10).

The Answer further alleges that this assertion (which Appellants never made) “is incommensurate with the claimed features [which do not stipulate creating a network connection to facilitate mirroring].” (Answer, page 19). It is respectfully asserted that this argument further illustrates that hindsight has improperly dominated the Examiner’s analysis, as the question of what is claimed is simply not relevant to determining what one of ordinary skill in the art would have been led to do based upon the teachings of the prior art².

Appellants have not sought to “mislead” about or “narrow” the teachings of Zarrow, but have simply suggested that the teaching of Zarrow need to be considered in their totality. There is simply no question that Zarrow teaches a technique for enabling communication with a remote device using SCSI, and wherein one application for those techniques is to perform host-based mirroring.

The Answer now alleges that it would have been obvious to modify the system of Zarrow by:

removing the logic/software in the host, which assists with the mirroring process to another element. The concept of removing logic from a host to another element is well known in the art to relieve the host of certain task. Additionally, the modification would require rearranging the location of the network interface (reference 38 in Figure 1) so that the network interface is coupled to the structure that performs/manages mirroring and accessing the storage device. The concept of rearranging parts to effectuate certain design goals is well known in the art also. (Answer, pages 19-20).

² A similar (mis)assertion about arguments made concerning the teachings of the prior art being irrelevant because they are incommensurate with claim scope is made at page 27 of the Answer.

Initially, Appellants respectfully traverse the assertion that it is well known in the art to remove logic from a host to another element to relieve the host of a task and to rearrange parts to effectuate certain design goals. Again, the only references of record that teach direct storage system to storage system mirroring teach that it be performed over a dedicated communication link. There is simply no teaching or suggestion to modify that aspect of Yanai (buttressed by Ohran), and it is respectfully asserted that “hand waving away” that distinction by simply asserting that it is well known to make whatever modifications are necessary to reconstruct the claimed invention to meet design goals that are unspecified in the prior art is simply improper.

In response to Appellants’ argument that all of the teachings of Zarrow (including those that teach away) must be considered and that motivation be pointed to to justify any modification thereto, the Examiner asserts that “Appellants appear to have a narrow interpretation of how obviousness is established and a diminished skill level for one of ordinary skill in the art.” (Answer, page 21). As demonstrated by the cases cited in Appellants’ Brief at pages 18-19, the Federal Circuit has made clear that to avoid the type of improper hindsight analysis that has taken place here, the full teachings of the prior art must be considered and motivation must be pointed to for any alleged modifications. That is not a narrow interpretation of obviousness – it is the law.

B. Yanai

The Answer concedes that Yanai describes using dedicated high speed point to point communication links, but refers to a section of Yanai describing technologies to implement this link as somehow suggesting that Yanai teaches communication between the storage systems over a communication link that is shared with other resources. (Answer, page 20). Specifically,

Yanai teaches that a number of underlying technologies can be employed to implement the direct point to point communication link, including fibre optic links and T1 and T3 telecommunication links. (col. 4, lines 59-62). In addition, Yanai teaches that networking technologies also can be used to implement the point to point communication link (col. 4, lines 63-65).

The Examiner seizes on the reference to one of these networking technologies (i.e., FDDI) to assert that Yanai's teachings are not limited to dedicated point to point communication links. (Answer, page 20). To support this assertion, the Examiner cites to portions of a text book by Tanenbaum which describe FDDI as a high performance fibre optic token ring which is commonly used as a backbone to connect copper LANs.³ There is certainly nothing in Tanenbaum or Yanai which suggests that the FDDI technology, or any other networking technology, cannot be employed to implement a dedicated point-to-point communication link that is not shared by any other resource between storage systems. Thus, the Examiner's assertion that Yanai's teachings are not limited to a dedicated point-to-point communication link are unsupported.

The Answer asserts that Yanai does not state that it is "absolutely necessary" to use a dedicated link to perform storage system to storage system communication, and that one of ordinary skill in the art would have known to use other types of communication links as shown by Yanai. (Answer, page 23). Similarly, the Answer continues to assert that it is the Appellants' burden "to prove that Yanai's system can only function via a point-to-point communication link" (Answer, page 24). This evidences a misunderstanding of the applicable burden, as the

³ The Examiner's Answer mis-characterizes Tanenbaum by asserting that it teaches that FDDI network connection links "are most commonly used as a backbone." That is not what Tanenbaum says.

Examiner is not entitled to simply allege that it would have been obvious to modify any portion of the reference unless the reference teaches that such modification is absolutely prohibited, but rather, the Examiner must point to some motivation in the art to support any alleged modification. In this respect, the Examiner's pointing to the teachings of Zarrow are unavailing, as Zarrow teaches nothing with respect to direct storage system to storage system communication. The Examiner's attempt to dismiss the teachings in Yanai and Ohran that direct storage system to storage system mirroring be performed using a dedicated communication link (see Answer, page 23) is another example of the Examiner improperly picking and choosing purportedly helpful teachings while ignoring those that don't support the rejection.

C. Ohran

The Answer's comment about Ohran's teaching that systems employing direct storage system to storage system mirroring typically require a dedicated communication link (col. 4, lines 62-65) is telling. Since the teaching is not helpful to the rejection, it is simply ignored because purportedly "Ohran's teachings do not aid in reconciling the issues at hand." (Answer, page 20). As the cases cited at page 18 of Appellants' Brief point out, it is simply improper to ignore the teachings of Ohran, as the Federal Circuit has made clear teachings that support patentability and teach away from the alleged modification must be fairly considered.

The assertion in the Answer that Ohran's teachings are not relevant because Zarrow teaches performing remote mirroring using a non-dedicated communication link merely evidences the improper picking and choosing of the aspects of the prior art that purportedly support the rejection while ignoring those that don't. Zarrow unquestionably teaches performing remote mirroring over a non-dedicated communication link only in the context of *host-based*

mirroring, and there certainly is nothing in Zarrow or in any other reference of record to contradict the teachings of Yanai and Ohran that a dedicated communication link should be employed when implementing mirroring directly between two storage systems.

D. Piecing Together Of Only Selected Teachings
From The References Is Improper

The Answer asserts that it is Appellants that have selectively picked teachings from Yanai and Zarrow in an attempt to assert that they teach that remote mirroring without host intervention “absolutely requires the use of a dedicated point-to-point communication link.” (Answer, page 24). This mis-states Appellants’ argument and misapprehends the appropriate burden. Again, the Examiner is not free to make any modification necessary to support a rejection unless the references teach that such a modification is absolutely prohibited, but rather the Examiner must support every modification with some motivation in the prior art. Appellants have not advocated selectively focusing on any particular teachings or ignoring others, but has simply advocated that the references be considered in their totality as required⁴. It is the Examiner who is seeking to pick and choose only selected teachings to support the rejection.

This improper picking and choosing is evidenced by the analysis expressed in the Answer at page 24. The Examiner picks the teaching in Yanai of “coupling a secondary storage system to a primary storage system via a communication link” to avoid host intervention, while simply ignoring the teaching in Yanai that the communication link be a dedicated point-to-point link. The Answer then chooses the teaching of Zarrow of “mirroring through a network cloud” while ignoring the teaching of Zarrow that this mirroring be host-based.

⁴ See the cases cited at pages 18-19 of Appellants’ Brief.

The Answer goes on to conclude that Yanai's teaching that host-based mirroring degrades system performance suggests "the desirability of using Yanai's teachings" in the system of Zarrow. (Answer, page 26). Appellants do not take issue with that conclusion, but point out that using Yanai's teaching means using all of them, including the teaching to implement storage system to storage system mirroring using a dedicated communication link. If the Examiner wants to allege a further modification to the system one would have arrived at following the teachings of Yanai and Zarrow, Appellants assert that some motivation need be provided for any such modification. The Examiner does not provide any, and instead asserts that it is unnecessary because:

The Examiner has used the secondary reference for the specific teaching of coupling a secondary storage system to a host CPU via a primary storage system and not for using a point-to-point communication link. Therefore, motivation to replace the direct point-to-point communication link in Yanai's system is not provided, as this feature was not relied upon. (Answer, page 26).

This assertion shows the clear error in the rejection, as the Examiner is not allowed to use Yanai only for specific teachings while ignoring those that teach away from the invention, and is not able to avoid the requirement to find motivation for modifying a particular feature by simply asserting that the feature was not relied upon.

IV. The Examiner's Reliance Upon The Alleged Skill In The Art Does Not Replace The Need For Motivation For The Alleged Modification

The Answer asserts that hindsight has not impermissibly been employed because the Examiner has provided some motivation for combining Zarrow and Yanai. However, as should be clear from the foregoing, one following the teachings of Zarrow and Yanai would have been led to implement direct storage system mirroring communication via a dedicated communication

link, and the Examiner has not pointed to any motivation for modifying that aspect of the Zarrow/Yanai system. The assertion in the Answer that one of skill in the art would have somehow appreciated that they should focus only on certain teachings in Zarrow and Yanai but ignore others is simply unsupported in the prior art, and legally insufficient as a substitute for motivation in the prior art to make the modification.

V. The Answer Continues To Fail To Cite Any Motivation For Employing Multiple Communication Paths Into A Single Network Cloud

As pointed out in the Appellants' Brief, the fact that one of ordinary skill in the art would have understood that separate parallel dedicated paths provide performance improvements would teach absolutely nothing about the desirability of employing multiple paths into a network. The Answer simply has no response on this point.

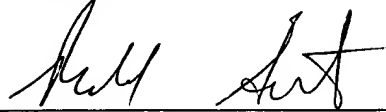
VI. Conclusion

For the reasons set forth in Appellants' Brief and for the foregoing reasons, the rejections of each of the claims is improper and should be reversed.

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Respectfully submitted,

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